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In Memoriam

José A. Campos-Ortega

José Campos-Ortega died at the age of 63 in Cologne on March 8, 2004. He was one of the pioneers of modern developmental neurobiology, and he will be remembered for his contributions to the understanding of early neurogenesis.

José studied medicine in Valencia, Spain, and as a young man he moved to Göttingen, Germany, in the mid-1960s to study the visual system of monkeys. In 1970, he moved from Göttingen to Tübingen, where he studied the visual system of a much simpler organism, the housefly *Musca*. Together with Nick Strausfeld, he deciphered the amazing neural network in the first optic ganglion, the lamina. These fundamental and important anatomical studies opened a new avenue in José's scientific interest, and he focused more and more on the question of how neurogenesis is initiated in the first place. It was one of José's many talents—to ask clear questions and then use the most adequate tool to answer them—that led him to switch his research object to *Drosophila melanogaster*. Already in the early 1970s, he had realized that only a combination of thorough anatomical and genetic analyses would make it possible to dissect complex problems such as the understanding of early neural development.

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José was only 33 when he was offered a tenured professor position at the University of Freiburg, Germany. This appointment was quite unusual because José had not finished his Habilitation—a must at that time in Germany. However, the Biology Faculty in Freiburg had realized that José would be an exceptional colleague, so this hurdle was quickly removed and he started his lab in 1973.

During the following 9 years, he stayed in Freiburg and began to analyze the genetic networks underlying the development of the *Drosophila* nervous system. José first started to determine the phenotypic consequences of the loss of many genes and screened the available deficiencies for neural abnormalities. It was in this period that his group unraveled the function of the *achaete–scute* complex for central nervous system development and identified the famous neurogenic genes.

In 1982, with a large collection of interesting mutants and many groundbreaking conceptual ideas, José was made a chair at the University of Cologne, where he not only headed his own group but also shaped the Institute for Developmental Biology in a remarkable way. In Cologne, José started the molecular analysis of the neurogenic genes. A picture of the first gel run in his lab hung next to a drawing of Don Poulson, showing a *Notch* mutant embryo with a hyperplasic nervous system, and the many microscopic images that decorated his office. This reflects one of the great achievements of José, who had the scarce ability to combine abstract concepts, classical anatomical studies, experimental embryology, elegant genetic approaches, and molecular biology in his desire to understand neurogenesis. At the end, there was the experimentally verified concept that is now found in all textbooks. Groups of initially equivalent cells gain their competence to develop as neural progenitor cells by expressing proneural genes, such as members of the *achaete–scute* complex. Subsequently, the neurogenic genes set up cross talk between different cells of these equivalent groups to mediate a process of lateral inhibition—which is of course different from the lateral inhibition in the visual system that José worked on at the beginning of his career.

In all this work directed toward a deeper and deeper understanding of neurogenesis, José never lost his view of and interest in the embryo as an entity. His group developed novel approaches and tackled the scientific questions from a wide range of perspectives. It was because of his firm belief that understanding development requires a solid knowledge of anatomy that he, together with his graduate student Volker Hartenstein, wrote the book *The Embryonic Development of Drosophila melanogaster*. This "green book" set the standard and tremendously helped boost analyses of many aspects of *Drosophila* development.

This also holds true for those of us who were fortunate to accompany José during his years in Cologne. From the work that originated there, we switched to new questions *Drosophila* posed. José in turn moved again to a new organism, and so to say returned to his roots when he studied the anatomy of the vertebrate nervous system. The zebrafish allows the use of modern genetics to finally begin to understand how our brain is made. He and many scientists worldwide have meanwhile demonstrated that the fundamental processes that direct neurogenesis in *Drosophila* are also effective in vertebrates.

José's further scientific plans could not be accomplished, and his energy and drive will be missed. However, it was not only his scientific contributions that made José a very special person. We will remember him as an outstanding academic teacher and friend. Blessed with a sharp intellect and fluent in many languages, he infected his surroundings with his vivid verve and enthusiasm for science. His open and constructive comments stimulated many new ideas and experimental approaches and finally led to the dispersion of many of his ideas. José organized several Cold Spring Harbor courses on *Drosophila* neurobiology, and for 9 years served as an instructor in these courses, helping to initiate many different research activities around the world. At the Institute for Developmental Biology in Cologne, he gathered scientists working on flies, plants, and fish, in the firm belief that science prospers from the interchange of concepts and ideas. José was always supportive and took the time to listen. He leaves us in mourning with the responsibility to follow in his large footsteps.

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